Making Sense of Smarter Balanced Assessment Results for District Staff
Data Summary of WERA Pre-Conference Workshop #1 – December 9th 2015

The following is a summary of data presented at a WERA pre-conference session on December 9th 2015. The presentation explored the relationships between the summative Smarter Balanced assessments and other assessments commonly used by school districts.

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Below is a table of correlation coefficients of MSP and SBA standardized scores, an analysis performed by Paul Stern of Vancouver Public schools utilizing data from Mukilteo (623 students), Vancouver (5,860 students), Northshore (6,967 students), and Tacoma school districts (8,988 students).

Table 1. Correlation coefficients: MSP and SBA standardized scores.

	MSP Reading with SBA ELA	MSP Math with SBA Math	SBA Math with SBA ELA	MSP Math with MSP Reading
4th Grade	0.78	0.79	0.82	0.72
5th Grade	0.77	0.83	0.82	0.69
6th Grade	0.77	0.82	0.83	0.73
7th Grade	0.81	0.86	0.82	0.75
8th Grade	0.82	0.85	0.81	0.73

**Sample includes students with both 2014 MSP scores and 2015 SB scores.*

The correlations in the above table suggest the following:

- Constructs being measured from Reading MSP to ELA SB were more pronounced compared to math MSP and math SB.
- The more rigorous Common Core standards result in a more pronounced need to for strong ELA skills to explain thinking on the math assessment.
- The ELA and math SB tests are more demanding and may require more grit and persistence to achieve high scores.

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Michael Power, Shoreline Public Schools, explored the relationship between Smarter Balanced scale score and GPA by utilizing data from Bellingham, Tahoma, Mukilteo, Northshore, Tacoma, Shoreline, and Vancouver school districts. The sample size consisted of 19,450 students in grades 6 through 11 who had Smarter Balanced scores from spring 2015 and had a cumulative GPA at the end of spring semester 2015.

Table 2. Correlation Coefficients: Smarter Balanced Scale Scores and GPA.

	All Students	6th Grade	7th Grade	8th Grade	10th Grade	11th Grade	Male	Female	American Indian or Alaskan Native	Asian	Black or African American	Hispanic	Pacific Islander	White	2 or More Races
SB ELA	0.55	0.62	0.68	0.62	0.6	0.55	0.53	0.52	0.48	0.48	0.39	0.5	0.57	0.52	0.55
SB Math	0.64	0.62	0.67	0.66		0.62	0.64	0.62	0.62	0.64	0.56	0.58	0.6	0.6	0.64

The analysis determined that 30% of variance in SB ELA scores is predictable from GPA and 40% of variance in SB math scores is predictable from GPA. In addition, there is very little variability as a function of gender.

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Jack Monpas-Huber conducted an analysis of the relationship between Smarter Balanced and the Fountas & Pinnell (F & P) benchmark assessment system utilizing data from Marysville, Bellingham, and Issaquah school districts. Students were required to have 3 data elements to remain in the data set: a fall F & P level, a spring summative Smarter Balanced ELA scale score, and a spring F & P level.

Table 3. Correlation Coefficients: Smarter Balanced Scale Scores and Fountas & Pinnell benchmark level.

	Group Size	Fall F & P	Spring F & P
3rd Grade	1,625	0.67	0.69
4th Grade	1,414	0.68	0.68
5th Grade	694	0.6	0.65

- The results suggest that Fountas & Pinnell is a useful tool that can provide the diagnostic information that summative assessments, such as Smarter Balanced, cannot provide.

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Pat Cummings at Tacoma Public Schools explored Smarter Balanced results and their relationship to the Scholastic Reading Inventory (SRI). The analysis includes a combined 5,643 students across grades 6, 7, 8 and 10. Correlations are .8 for grades 6 and 7, .79 for grade 8 and .65 for grade 10.

Table 4 provides data on the percentage of students who met standard on both the Smarter Balanced ELA assessment and the SRI. Both assessments were administered in the spring of 2015 within one month of each other.

Table 4. Percentage of Students Meeting SB ELA Standard and SRI Level.

	6th Grade	7th Grade	8th Grade	10th Grade
Advanced	89%	86%	90%	84%
Proficient	44%	47%	43%	53%
Basic	11%	9%	10%	19%
Below Basic	2%	3%	4%	15%

Table 5 explores the relationship between Smarter Balanced ELA and SRI in relationship to level score. For example, Table 5 shows that 17 students who scored “advanced” on the SRI only achieved a Level 1 on the Smarter Balanced ELA assessment.

Table 5. Crosstab of ELA and SRI levels.

		SBA ELA Levels			
		Level 1	Level 2	Level 3	Level 4
SRI Levels	Below Basic	295 (6%)	30 (1%)	4 (0%)	1 (0%)
	Basic	555 (11%)	384 (7%)	80 (2%)	2 (0%)
	Proficient	244 (5%)	785 (15%)	773 (15%)	50 (1%)
	Advanced	17 (0%)	237 (5%)	1106 (21%)	655 (13%)

**Numbers are student counts and in parenthesis is the resulting percentage of the total group that the number represents.*

- SRI and SB categorized students in nearly identical fashion, each with four levels and the four levels having identical descriptors.
- The SRI can accurately predict if a student will meet standard on the summative SB assessment.

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Pete Bylsma, Mukilteo School District, conducted an analysis on SB and STAR results utilizing data from Federal Way, Marysville, Mukilteo, Puyallup, Renton, and Shoreline school districts. Total group size was 35,847 students in reading/ELA and 41,022 for math. Grade level group size ranged from a low of 2,115 students in grade 10 to a high of 7,317 students in 3rd grade math.

Table 6. Correlation Coefficients: SB and STAR scale scores.

	Grade Level						
Reading/ELA	3rd	4th	5th	6th	7th	8th	10th
Fall	0.774	0.780	0.760	0.755	0.778	0.784	0.766
Winter	0.787	0.787	0.814	0.783	0.799	0.803	0.763
Spring	0.799	0.807	0.811	0.812	0.817	0.805	0.727
Math	3rd	4th	5th	6th	7th	8th	10th
Fall	0.803	0.800	0.813	0.834	0.806	0.783	
Winter	0.851	0.837	0.860	0.840	0.850	0.790	
Spring	0.842	0.851	0.844	0.857	0.827	0.791	

While the STAR assessments and Smarter Balanced clearly have strong correlations across content areas and grade levels, developing strong and stable cut scores on STAR, based on Smarter Balanced results, is a challenge. Two of the methods that were explored are described below.

Method 1 utilized a regression line to determine which percentile rank (PR) corresponds to each cut score. Method 2 determined the median PR for STAR in fall, winter and spring that were just below and above the SB cut scores. Results for methods 1 and 2 are displayed in Table 7. For example, in 3rd grade ELA using method 1, a percentile rank of 79 on STAR is the cut-off to accurately predict if a student achieved a Level 4 on the Smarter Balanced ELA assessment in 3rd grade.

Table 7. Results of Methods 1 and 2.

Method 1 - Regression								Method 2 - Median					
ELA Scatterplot Intersections (Spring)				Math Scatterplot Intersections (Spring)				ELA Cut Score Average (Spring)			Math Cut Score Average (Spring)		
Grade	L2	L3	L4	L2	L3	L4		L2	L3	L4	L2	L3	L4
3	23	52	79	30	58	86		30	48	74	30	62	84
4	27	50	74	25	60	90		26	42	76	30	67	86
5	20	45	75	37	67	90		20	42	73	37	70	87
6	14	43	76	35	61	82		20	42	65	35	65	80
7	16	42	73	32	60	82		20	33	65	35	55	82
8	10	38	73	35	59	78		23	39	66	33	60	70
Avg.	18	45	75	32	61	85		23	41	70	33	63	82